Claims

What is claimed is:

1. A method for gradual expansion of a cellular network comprising the steps of:

A. Creating a plurality of new, smaller cells within an existing, larger cell, wherein each new cell is randomly located;

B. integrating each of the new cells within the existing cellular network by connecting it to the cellular network infrastructure; and

C. giving priority in connecting mobile users through one of the new cells' base stations, by transferring calls from the existing base station to a new base station, whenever possible.

2. The method for the expansion of a cellular network according to claim 1, further including the step of coordinating between the new cells for choosing which cell will handle each mobile user.

3. The method for the expansion of a cellular network according to claim 2, further including the step of coordinating between the new cells for transferring a mobile user between cells.

4. The method for the expansion of a cellular network according to claim 2, further including the step of coordinating between the new cells for taking over communications with a mobile user from a new cell which become inactive.

5. The method for the expansion of a cellular network according to claim 1, further including the step of deactivating the original base station which covers the existing cell, when the new cells effectively cover the existing cell.

6. The method for the expansion of a cellular network according to claim 1, further including the step of connecting the first new cells at a low level in the existing cellular network.

7. The method for the expansion of a cellular network according to claim 6, further including the step of connecting the new cells at a high level in the existing cellular network when the new cells cover a significant part of the original cell.

8. The method for the expansion of a cellular network according to claim 1, further including the step of allocating frequencies to new cells such as to minimize interference with the existing cell and between the new cell.

9. The method for the expansion of a cellular network according to claim 1, further including the step of conditional beacon activation at each new cell, responsive to the state of availability of a beacon from the original base station.

10. The method for the expansion of a cellular network according to claim 1, further including the step of location finding and reporting by each new cell.

11. The method for the expansion of a cellular network according to claim 10, further including the step of forming location areas whenever possible, for efficient calls handover.

12. A method for gradual expansion of a cellular network comprising the steps of:

A. Creating and integrating a plurality of new, smaller cells within an existing, larger cell, wherein the new cells cover a small part of the existing cell and are connected at a low level to the existing cellular network;

B. Creating and integrating additional new, smaller cells within the existing cell, wherein the new cells cover a significant part of the existing cell area and are connected at a high level to the existing cellular network.

13. The method for the expansion of a cellular network according to claim 12, further including the step of deactivating the original base station when the new cells cover most of the existing cell area.

14. The method for the expansion of a cellular network according to claim 12, wherein each new cell can be randomly located, in an unplanned manner.

15. The method for the expansion of a cellular network according to claim 12, wherein a mobile phone can connect both with the original base station and new base station, and wherein priority is given in connecting to a new base station whenever possible.

16. In a cellular network system, an add-on base station comprising transmitters, receivers and a controller, wherein the controller includes means for listening to the cellular traffic and for allowing the base station to take control according to predefined rules.

17. The add-on base station according to claim 16, wherein the transmitter further includes means for beacon transmission control and the controller further includes means for a conditional activation of the beacon, responsive to the state of reception of the original base station's beacon.

18. The add-on base station according to claim 16, wherein the transmitter further includes means for radiation emission control, and the controller further includes means for controlling the emission level at the transmitter.

19. The add-on base station according to claim 16, further including location finding means and wherein the controller further includes means for using or reporting the location information.

20. The add-on base station according to claim 16, wherein the controller includes means for connecting either at a low level or a high level in an existing cellular network.